Leadership for Wisconsin Watersheds: Making Projects Work

TUESDAY, MARCH 20th, 2012

Funding
Lessons learned
What makes projects work?
Monitoring
Goals, approach/strategies
What’s next in the project

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<table>
<thead>
<tr>
<th>Brown County Watersheds Program Funding History 1983-2011</th>
<th>Total Grant $ 1983 – 2011 Spent</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Shore Pike Restoration Project (2007) NRDA, Great Lakes Restoration Initiative</td>
<td>$543,742</td>
</tr>
<tr>
<td>Baird Creek Buffer Project Great Lakes Restoration Project (2010)</td>
<td>$101,396</td>
</tr>
<tr>
<td>Branch River Priority Watershed (1996)</td>
<td>$3,016,516</td>
</tr>
<tr>
<td>East River Priority Watershed (1993)</td>
<td>$2,729,332</td>
</tr>
<tr>
<td>Duck, Apple/Ashwaubenon Creeks Priority Watershed (1997)</td>
<td>$1,445,515</td>
</tr>
<tr>
<td>Red River Priority Watershed (1995)</td>
<td>$228,838</td>
</tr>
<tr>
<td>Kewaunee River Priority Watershed (1983)</td>
<td>$135,103</td>
</tr>
<tr>
<td>Baird Creek grants (EPA Grant 1999, DNR, 2002-3 buffer grant)</td>
<td>$125,100</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$8,325,542</strong></td>
</tr>
</tbody>
</table>
Lessons Learned

Most popular conservation practices adopted:

• Animal Waste Storage 374 permits since 1986.
• Barnyard runoff
• Nutrient Management (590) 110,000 acres in 2011. (Nutrient management was not available in early watershed projects)

Least popular conservation practices adopted:

• Grassed Waterways
• Buffers
• Cover Crops
Most Popular: Animal Waste and Barnyards
Not Popular: Grassed Waterways, Buffers, Cover Crops
Water Quality

Surface Water

The Fox River is the 3\textsuperscript{rd} largest contributor of Sediment to Lake Michigan of all tributary streams.

(U.S.G.S. Water Resources)

Private Agronomists: 590 Plan is good for animal waste spreading, but they will not tell farmer to install waterways, buffers or address concentrated flow for risk of losing their client.
Surface Water Suspended Sediments

Total Suspended Solids Export
Lower Fox River Basin and Duck Creek
2004 Baseline, Total 57,518 ton

- Agriculture: 63%
- Urban: 19%
- Construction Sites: 10%
- Other nonpoint: 3%
- Point Sources: 5%
- Other point sources: 5%

Total Phosphorus Export
Lower Fox River Basin and Duck Creek
2004 Baseline, Total 238,912 kg

- Agriculture: 63%
- Urban: 19%
- Construction Sites: 3%
- Other nonpoint: 3%
- Municipal Point Sources: 17%
- Industrial Point Sources: 21%
Surface Water - Phosphorus

Total Phosphorus Export
Lower Fox River Basin and Duck Creek
2004 Baseline, Total 238,912 kg

Agricultural Land 44%
Industrial Point 21%
Municipal Point 17%
Urban 9%
Construction Sites 3%
Barnyard 3%
Other nonpoint 3%

Suspended Sediment

TOSS (t/ha)

- Lfws06_1.shp
- 0.01
- 0.20 - 0.30
- 0.31 - 0.37
- 0.40 - 0.46
- 0.48 - 0.52
- 0.53 - 0.58
- 0.60 - 0.72
- 0.79 - 0.92

Map showing the distribution of suspended sediment in various counties and waterways. The map legend provides a color scale for TSS (t/ha) values.
Why are grassed waterways, buffers and cover crops not popular?

LAND USE TRENDS

Brown County total land area approximately 350,000 acres.

<table>
<thead>
<tr>
<th>Year</th>
<th>Farms</th>
<th>Land in Farms</th>
</tr>
</thead>
<tbody>
<tr>
<td>1954</td>
<td>2,672</td>
<td>300,900 acres</td>
</tr>
<tr>
<td>1972</td>
<td>1,920</td>
<td>274,800 acres</td>
</tr>
<tr>
<td>1978</td>
<td>1,730</td>
<td>263,400 acres</td>
</tr>
<tr>
<td>1983</td>
<td>1,480</td>
<td>241,500 acres</td>
</tr>
<tr>
<td>2008</td>
<td>1,053*</td>
<td>162,000 acres</td>
</tr>
<tr>
<td>2011</td>
<td>?</td>
<td></td>
</tr>
</tbody>
</table>

Brown County Crop Production Overview

Less crop acres, more corn silage, more soybeans, less conservation tillage, less hay and cover crops. Need more waterways, concentrated flow channels and buffer strips to reduce sediment and phosphorus delivery to Streams and Green Bay.

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Potatoes</td>
<td>50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Barley</td>
<td>700</td>
<td>750</td>
<td>62,000</td>
</tr>
<tr>
<td>Corn</td>
<td>67,800</td>
<td>65,000</td>
<td>62,000</td>
</tr>
<tr>
<td>Hay</td>
<td>87,000</td>
<td>74,000</td>
<td>61,000</td>
</tr>
<tr>
<td>Peas</td>
<td>1,600</td>
<td>2,500</td>
<td></td>
</tr>
<tr>
<td>Oats</td>
<td>47,300</td>
<td>31,500</td>
<td></td>
</tr>
<tr>
<td>Snap Beans</td>
<td>300</td>
<td>1,200</td>
<td></td>
</tr>
<tr>
<td>Soybeans</td>
<td>100</td>
<td>200</td>
<td>22,400</td>
</tr>
<tr>
<td>Sweet Corn</td>
<td>2,100</td>
<td>1,600</td>
<td></td>
</tr>
<tr>
<td>Wheat</td>
<td>150</td>
<td>2,050</td>
<td>15,800</td>
</tr>
<tr>
<td>Total acres</td>
<td>207,100</td>
<td>178,800</td>
<td>162,000</td>
</tr>
</tbody>
</table>

Higher percentage of Corn, Soybeans, Wheat
Lower percentage of Hay
Oats eliminated
Cropping trends = Less Ground Cover over winter
Brown County Dairy
Production Overview

Higher cow numbers, higher milk production has lead to more intensive cropping practices. Grassed waterways, concentrated flow channels and buffer strips are needed to reduce sediment and phosphorus delivery.

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Production/Cow</td>
<td>9,959</td>
<td>13,200</td>
<td>22,300</td>
</tr>
<tr>
<td>Lbs./head/year</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Cows</td>
<td>40,919</td>
<td>39,200</td>
<td>41,000</td>
</tr>
<tr>
<td>Number of Herds</td>
<td>1,348</td>
<td>239</td>
<td></td>
</tr>
<tr>
<td>Average Herd Size</td>
<td>~30</td>
<td>~172</td>
<td></td>
</tr>
<tr>
<td>All Cattle numbers</td>
<td>91,400</td>
<td>105,000</td>
<td>105,000</td>
</tr>
<tr>
<td>1000 AU operations</td>
<td>0</td>
<td>2</td>
<td>18</td>
</tr>
</tbody>
</table>

Higher milk production = higher manure production
Reduced herds, Bigger herd size, Concentration of livestock
Increased Cattle numbers (all cattle)

**Need for more feed on less cropland** = Waterways, Cover crops, Buffers.
<table>
<thead>
<tr>
<th>Location</th>
<th>AU Current</th>
<th>Proposed</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Franken</td>
<td>9,096</td>
<td>16,000</td>
</tr>
<tr>
<td>Stock Farm</td>
<td>16,094</td>
<td>24,766</td>
</tr>
<tr>
<td>East Land fill</td>
<td>5,893</td>
<td>7,103</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>31,083</strong></td>
<td><strong>47,869</strong></td>
</tr>
</tbody>
</table>
What makes projects work?

#1 : Adequate Qualified Staff

Staff without cost share will get conservation on land, **cost share without staff will not**!

- Teamwork
- Commitment
- Values
- Cooperation
- Harmony
- Outreach
- Technical
- Marketing
Marketing/ Education needed
Survey of Dairy Farmers in Lower Fox by UW (February 2007)

• 168 (58%) responded (CAFO’s not in survey)
  – 86% agreed it is their responsibility to protect WQ.
  – Only 14% would be willing to pay more to improve WQ.
  – Twice as many (36%) identified Waterfowl droppings as more serious than Agriculture (18%).
  – Respondents see water pollution as generated principally by non Ag sources.
  – Two most influential factors are profitability (88%) and out of pocket expense (87%).
  – 75% will maintain or expand herd size in next 5 years.
Monitoring – P every 4 years with GIS and Soil Tests

Acre Calculations
Farm Field Acres within TMDL with P < 25 ppm: 23,024 ac
Acres within TMDL with P between 25-50 ppm: 15,046 ac
Acres within TMDL with P between 50-75 ppm: 6,117 ac
Acres within TMDL with P between 75-100 ppm: 2,347 ac
Acres within TMDL with P > 100 ppm: 1,875 ac

Total Acres sampled within TMDL: 48,409 ac

Phosphorus (P)

Soil Test Values
Lower Fox River TMDL*
Brown County, WI

* TMDL: Total Maximum Daily Load
For details on the Lower Fox TMDL visit: http://basineducation.uwex.edu/lowerfox/

Legend:
- 0-25 ppm
- 25-50 ppm
- 50-75 ppm
- 75-100 ppm
- > 100 ppm

Lakes, Ponds & Rivers
Fox River TMDL area
Rocks & Streets are white

10/23/2010 Brown County Land & Water Conservation Department & Land Information Office
GIS Monitoring –
High P fields / Needed Buffers

Upper East River Riparian Protection Project
(Brown County Only)

Legend:
- Installed Buffers
- 30ft Buffer Required
- East River Subwatersheds

Ag Field P Levels
P ppm
- 0 - 25
- 26 - 50
- 51 - 75
- 76 - 100
- 101 - 1000

Created: 3/12 By: Brown Co. LWCD
Three year Total Phosphorus concentrations for the period 2004 and 2006 available from the Lower Fox River Watershed Monitoring Program show all the stream data with higher phosphorus levels than the state standard which was set at .075 ppm. (New Wisconsin standards are .1 mg/L for rivers and lakes and .075 mg/L for streams adopted in 2010).

<table>
<thead>
<tr>
<th>Sub Basin</th>
<th>3 year record of Total Phosphorus concentrations Lower Fox River Watershed Monitoring Program 2004-2006*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apple Creek</td>
<td>.2 - .31 mg/L</td>
</tr>
<tr>
<td>Ashwaubenon Creek</td>
<td>.275 - .4 mg/L</td>
</tr>
<tr>
<td>Baird Creek</td>
<td>.12 - .19 mg/L</td>
</tr>
<tr>
<td>Duck Creek</td>
<td>.16 - .195 mg/L</td>
</tr>
<tr>
<td>East River</td>
<td>.18 - .355 mg/L</td>
</tr>
</tbody>
</table>

Goals, approach/strategies

- Total Maximum Daily Load identifies source of loading as target.
- Nutrient Trading. GBMSD $220 million dollars to reduce 3% of P load vs. Agriculture BMP’s.
- Waste Transformation Facilities to save transportation costs and remove Phosphorus from Watershed.
- Use Phosphorus maps as priority setting.
- Attaching conservation practices like buffers to landowner deed.
- Fees for services increases awareness and will maintain dialog with agriculture.
What’s next in the project?

- Precision Ag?
- Gypsum standard to help reduce Phosphorus and create better soil structure.
- Tile line phosphorus answers – 50% of phosphorus now soluble and not attached to sediment.
- Waste Transformation Facilities.
- Continued funding by GLRI.
- Nutrient Trading.
- **Sustainable livestock limits** (Quota’s?) Cows per township or county. How far can we transport waste, fertilizer and feed if fuel reaches $6.00/gallon? Will we have enough cropland for feed for livestock if expansions continue? Potential climate change impacts.
Questions?